OBJECTIVES: To describe the use of biologics, in the treatment of rheumatoid arthritis (RA), in a real life Canadian setting. **METHODS:** Patients covered by the Quebec provincial drug reimbursement program (RAMQ) who had a diagnosis of RA and had used at least one biologic in the period from January 1, 2001 to June 30, 2011 were selected. Agents included in the study were adalimumab, etanercept, infliximab, abatacept, anakinra, golimumab, rituximab, tocilizumab and ustekinumab, as they were all reimbursed by the drug program. The use of biologics was analyzed in terms of patient characteristics, treatment patterns and costs. **RESULTS:** A total of 4225 patients were included in this study. The average age was 51.1 years (SD=14.6), and there was a higher proportion of women (69.9%). About two-thirds of patients (63.3%) had only a diagnosis of RA, while 36.7% had two or more concomitant diagnoses, such as psoriasis (15.9%) and psoriatic arthritis (11.5%). During the course of the study period, most patients used only one biologic (78.3%). The number of biologic scripts increased by an annual rate of 25% over the last 5 years; from 12,926 scripts in 2006 to 26,491 in 2010. Out of the total 135,616 scripts for a biologic, 74,058 were for etanercept (54.6%), 27,994 for adalimumab (25.9%), and 23,858 for infliximab (17.6%). Concomitant use of methotrexate decreased over time from 60.3% in the first year following initiation of the biologics to 44.2% in the fourth year. Average annual cost for biologics was $17,040 per patient and did not vary significantly over time. **CONCLUSIONS:** RA is a complex disease. More than a third of the patients studied had concomitant inflammatory diseases. Biologics use increased over time, and there was a marked reduction in the use of concomitant methotrexate four years after biologic initiation.

RESPIRATORY-RELATED DISORDERS – Clinical Outcomes Studies

PRS1
INHALED CORTICOSTEROID (ICS) USE IN NURSING HOME (NH) RESIDENTS WITH COPD

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OBJECTIVES: The prevalence of COPD in NH residents is 10-20%. While ICS use occurs commonly, there are concerns about adverse consequences of therapy. Our goal was to develop a profile of NH residents with COPD, and to identify differences in outcome markers in residents receiving ICS versus those not receiving ICS. **METHODS:** Pharmacy claims and Minimum Data Set (MDS) 2.0 data from January 1, 2009 to September 30, 2009 and October 1, 2009 to September 3, 2010 were extracted from Omnicare Senior Health Outcomes, then linked and de-identified. A profile of residents with COPD was developed using descriptive analyses. Residents receiving ICS were matched to residents not receiving ICS on age, gender, tobacco use, and prevalence of diabetes mellitus, respiratory infection, osteoporosis, pneumonia, hip fracture, and "other" fracture. One year change from baseline within subsets was assessed using Chi-square analyses primarily. Linear logistic regression was used to compare baseline-adjusted outcomes between subsets. **RESULTS:** Fifty-nine percent of NH residents with COPD had full MDS and pharmacy data available (24,733/41,598). Of these, 4000 ICS-receiving and 4000 non-ICS-receiving residents were matched. The ICS subset generally showed higher cognition, memory, and functioning (all p=0.001) comparatively. The non-ICS subset demonstrated higher incidence of Alzheimer's disease, other dementia, and greater cognitive impairment (all p=0.001), while shortness of breath, anxiety, glaucoma, pneumonia, oxygen therapy, and at least 1 hospital stay were more common in the ICS subset (all p<0.05). The 1 year change in ICS subset showed a significant increase in the adjusted odds ratio of "other" fracture (non-hip) when compared to the non-ICS subset {OR 1.44 [1.07, 1.94], p=0.016)}. **CONCLUSIONS:** Our analysis indicates NH residents with COPD receiving ICS may be at greater risk of non-hip fracture. Research focusing on a longer-term horizon, duration of ICS treatment, and recommended use of ICS is needed to further understand the consequences of ICS use.

PRS2
LONG-ACTING BETA-AGONISTS AND ASTHMA EXACERBATIONS REQUIRING SHORT COURSES OF ORAL CORTICOSTEROIDS: A MULTI-CATEGORY EXPOSURE MARGINAL STRUCTURAL MODELS ANALYSIS

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OBJECTIVES: To evaluate asthma-related morbidity in patients exposed to long-acting beta-agonist (LABA) bronchodilators as monotherapy, inhaled corticosteroids (ICS) monotherapy, and ICS/LABA combination therapy. **METHODS:** The Clinical Practice Research Datalink (formerly the General Practice Research Database, GPRD) was used to apply marginal structural models for the evaluation of asthma-related morbidity measured by prescriptions for short courses oral corticosteroids (OCS) within 12 months of initiating LABA, ICS, or ICS/LABA in a cohort of asthamtic adults. Asthma severity was measured by the following variables during 12 months before LABA initiation (prescription for OCS, asthma-related visits to hospitals or emergency departments, and number of prescriptions for inhaled short-acting beta-agonists [SABA]); and the following variables at the initiation and during 12 months after (prescription for SABA, and number of asthma drug classes prescribed). **RESULTS:** A total of 51,103 asthmatic adults were followed for 12 months after receiving first prescription for study drugs from January 4, 1993 to August 20, 2010. About 92% initiated ICS monotherapy, 1% initiated LABA monotherapy, and 7% initiated combination therapy. Among ICS/LABA combination therapy initiators, 78% were in single-device formulations and 22% were in separate-devices. Compared with ICS monotherapy, LABA monotherapy is associated with 10% increased risks of asthma exacerbations requiring short courses of OCS (HR, 1.10; 95%CI, 1.07-1.18). Initiators of ICS/LABA combination therapy are respectively 62% and 50% less likely to receive prescriptions of OCS for asthma exacerbations than initiators of ICS (HR, 0.38; 95%CI, 0.12-0.66) or LABA monotherapies (HR, 0.50; 95%CI, 0.14-0.78). **CONCLUSIONS:** Inhaled LABA should not be prescribed as monotherapy to adults with asthma, and should be uased as an add-on to ICS as maintenance therapy. The findings suggest presence of time-dependent confounding by asthma severity in the assessment of LABA association with asthma exacerbations requiring prescriptions of OCS.

PRS3
DISEASE BURDEN OF IDIOPATHIC CHRONIC COUGH (ICC) AND CHRONIC COUGH (CC) IN COPD, IPF AND LUNG CANCER (LC): AN EXPLORATORY LITERATURE REVIEW

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OBJECTIVES: Chronic cough (CC) accounts for 10–38% of all referrals to respiratory physicians (Morice, 2007). Some patients suffer CC related to lung cancer (LC), chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis (IPF). Additionally a proportion of patients with CC with no explanatory etiology remains symptomatic despite treatment and is classified as suffering idiopathic chronic cough (ICC). To understand the burden of CC and ICC, a systematic literature search was conducted on the epidemiology, natural history, humanistic and economic burden. **METHODS:** A systematic search strategy was implemented in MEDLINE, EMBASE, Cochrane HTA and NHS Centre for Review and Dissemination databases to identify relevant English language publications on the burden of cough since 2002. **RESULTS:** 1447 publications were identified in the search and an additional 10 from bibliographic review. Of these 98 articles were selected for further review using pre-defined inclusion criteria. The reported prevalence of CC varies between countries (9 to 33%); very limited information on CC in LC, COPD, IPF and ICC was found. Prolonged hypersensitivity of the cough reflex has been proposed as a mechanism, partly explaining resistance to treatment of CC and ICC. Patients' quality of life deteriorates due to insomnia, urinary incontinence, social disability or depression. Only one economic evaluation investigating the cost effectiveness of managing CC of unknown etiology was identified. It demonstrated that empirical treatment is the cheapest management option for CC, while cough management involving diagnostic procedures recommended by American College Chest Physicians is the most expensive option. **CONCLUSIONS:** The published literature on CC and ICC is extremely limited. Further research is needed to understand the humanistic and economic burden of these conditions and implement proper disease assessment. However, appropriate diagnosis and management of ICC and CC in COPD, IPF and LC create a significant unmet need.

PRS4
REDUCTION OF PULMONARY ARTERIAL HYPERTENSION (PAH)-RELATED HOSPITALIZATIONS WITH MACITENTAN IN THE RANDOMIZED CONTROLLED TRIAL SERAPHIN

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OBJECTIVES: The impact of macitentan, a novel endothelin receptor antagonist, on PAH-related hospitalizations was evaluated in the SERAPHIN trial (NCT00660179). **METHODS:** PAH patients aged ≥12 years in WHO functional class (FC) II-IV were randomized 1:1:1 to oral macitentan 3 or 10mg, or placebo once-daily. Time to either death due to PAH or hospitalization for PAH up to end of treatment (EOT), a secondary endpoint, and time to hospitalization for PAH up to EOT were evaluated via Cox proportional hazards regression and log rank tests. Annual rates of PAH-related hospitalizations and inpatient hospital days up to EOT (pharmacoeconomic endpoints) were adjusted post hoc using negative binomial regression for baseline FC (I/II vs. III/IV) and 6-minute walk distance (>380 vs ≤380 m). **RESULTS:** The 742 patients (76% female, median age 45 [range 12-85] years) were mostly in FC II (52%) or III (46%). Median treatment duration was >2 years. Risk of death due to PAH or hospitalization for PAH was reduced by 33% with macitentan 3mg (HR 0.67, 97.5% CI 0.46-0.97, P=0.0146) and 50% with macitentan 10mg (HR 0.50, CI 0.33-0.75, P<0.0001) versus placebo. Risk of hospitalization for PAH was reduced by 39% with macitentan 3mg (HR 0.61, CI 0.42-0.90, P=0.0040) and 50% with macitentan 10mg (HR 0.50, CI 0.34-0.76, P=0.0001). Of the patients randomized to placebo, macitentan 3mg and 10mg, 33% (n=82), 24% (n=59), and 21% (n=50), respectively, had ≥1 hospitalization for PAH. Annual rates of PAH-related hospitalizations and inpatient hospital days were reduced by 43% (treatment-effect ratio [TER] 0.57, 95% CI 0.38-0.86, P=0.0068) and 33% (TER 0.67, CI 0.33-1.37, P=0.2707), respectively, with macitentan 3mg, and by 55% (TER 0.45, CI 0.30-0.69, P=0.0002) and 52% (TER 0.48, CI 0.24-0.97, P=0.0416), respectively, with macitentan 10mg versus placebo. **CONCLUSIONS:** Significant reductions in these hospitalization endpoints demonstrate that macitentan improves long-term PAH-related health outcomes.